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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,688	10/17/2003	Amarendra Anumakonda	19441-0013	2687
29052	7590	02/03/2006	EXAMINER	
SUTHERLAND ASBILL & BRENNAN LLP			WARTALOWICZ, PAUL A	
999 PEACHTREE STREET, N.E.			ART UNIT	
ATLANTA, GA 30309			PAPER NUMBER	
			1754	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,688	ANUMAKONDA ET AL.	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-6 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/10/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6, drawn to an apparatus, classified in class 422, subclass 149.
- II. Claims 7-18, drawn to a method, classified in class 423, subclass 650.

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus such as one without an inlet for receiving a flow of heat exchange fluid and an outlet for discharging the flow of heat exchange fluid.

During a telephone conversation with Peter Pappas on January 19, 2006 a provisional election was made with traverse to prosecute the invention of the process, claims 7-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-6 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anumakonda et al. (U.S. 6221280) in view of Wojtowicz et al. (U.S. 2002/0041986) and Isogaya et al. (U.S.4331451).

Anumakonda et al. teach a process for catalytic partial oxidation of hydrocarbon fuel (col. 7, lines 40-44) wherein feeding heavy hydrocarbons such as kerosene are reacted with an oxidizer gas in a partial oxidation reactor in the presence of a noble metal catalyst at a temperature of about 1050° C (col. 5, lines 25-44) wherein the reaction product gas mixture comprising hydrogen and carbon monoxide (col. 5, lines 45-48) is fed to a solid oxide fuel cell system (fuel cell system inherently teaches producing electric power, col. 7, lines 1-4). Anumakonda et al. fail to teach passing a heat exchange fluid through the shell and past the at least one catalytic partial oxidation reactor with the heat exchange fluid in the shell flowing in the same direction of reactant flow in the catalytic partial oxidation reactor tube such that heat from partial oxidation in the at least one catalytic partial oxidation reactor transfers from the at least one catalytic partial oxidation reactor to the heat exchange fluid in the shell.

Wojtowicz et al. teach a process for producing hydrogen rich gas for use in a fuel cell produced from a hydrocarbonaceous material (paragraph 0019) wherein heat from an oxidation reaction is transferred for the purpose of heating an inlet stream (paragraph 0079, lines 15-24).

Isogaya et al. teach a process for catalytic gasification of heavy distillate such as a kerosene stream (col. 4, lines 5-10) wherein the temperature of the inlet must be

higher than 500°C (col. 5, lines 13-15) for the purpose of preventing the deposition of carbon on the catalyst bed (col. 5, lines 15-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide heat from an oxidation reaction transferred to an inlet stream (Wojtowicz et al., paragraph 0079, lines 15-24) in Anumakonda et al. in order to prevent the deposition of carbon on the catalyst bed (Isogaya et al., col. 5, lines 15-17) as taught by Wojtowicz et al. and Isogaya et al.

As to the limitation of the heat exchange fluid in the shell flowing in the same direction of reactant flow in the catalytic partial oxidation reactor tube, Marchand et al. teach a process for converting hydrocarbon into a stream containing hydrogen (paragraph 0001, lines 1-5) wherein a closed vessel having a reformat inlet and a reformat outlet for receiving and discharging, respectively, a reformat stream, and having a coolant inlet and a coolant outlet for receiving and discharging, respectively a coolant fluid stream (coolant fluid stream is heat-exchanger, paragraph 0065) wherein at least one passage of the heat-exchanger extends through at least a portion of the reaction chamber (paragraph 0073, lines 5-8) for the purpose of using the heat supplied by the exothermic oxidation for other parts of the reaction (paragraph 0133).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a closed vessel having a reformat inlet and a reformat outlet for receiving and discharging, respectively, a reformat stream, and having a coolant inlet and a coolant outlet for receiving and discharging,

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respectively a coolant fluid stream (coolant fluid stream is heat-exchanger, paragraph 0065) wherein at least one passage of the heat-exchanger extends through at least a portion of the reaction chamber (paragraph 0073, lines 5-8) in Anumakonda et al. in order to use the heat supplied by the exothermic oxidation for other parts of the reaction (paragraph 0133) as taught by Marchand et al.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Paul Wartalowicz
1/26/06


COLLEEN P. COOKE
PRIMARY EXAMINER